



THE COMMUNICATOR SURREY AMATEUR RADIO CLUB



Volume II

March 2010

Issue XLIII

VE7SAR

VE7RSC

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Surrey Amateur Radio Club

ALWAYS MONITOR 147.36+ (110.9)
OR 443.775+ (110.9 in and out) IRLP 1463

CLUB NET @ 8:00 P.M. Tuesday 147.36+ (110.9)

CLUB MAILING ADDRESS : 239 -7156 121 St. Surrey, B.C. V3W 0J6

**The next meeting of the Surrey Amateur Radio Club will be held at 7:00pm on Wednesday April 21st 2010 at Number Nine Training Centre 14901 64th Avenue
Talk in on 147.36+ (110.9) 443.775+ (110.9)**

Minutes SARC Meeting

10 March 2010

John VA7XB opened the meeting at 1930 hr. and welcomed past President Walt Bond VE6MN (VE7WDB) visiting from Alberta, and later, George Merchant VE7QH, a recent immigrant from the North Shore. Ten SARC members plus the two guests attended at No. 9 Firehall Training Centre.

John advised the group that the speaker originally scheduled for this meeting had requested that his presentation be deferred to April.

Since the Training Centre is not available on the scheduled meeting date, the next meeting will take place on either Thursday April 8th or Wednesday April 21st, depending on the speaker's preference.

Bill VE7XS was not available for a RAC Report. Fred VE7IO reported SEPARS events, summarizing radio upgrading at the EOC, recent use of the radio room for contesting as well as upcoming SEPARS meetings and exercise dates. Fred also gave an update on fundraising for the Olympics QSL card, use of the Olympic callsigns (VG7V, VG7W and VG7G) with around 14,000 contacts made to date.

Scott VE7HA gave the Treasurer's report. The

two accounts show a total balance of about \$3000. Discussion followed about the need for fund-raising activities especially in light of the decision not to offer ham classes this Spring, and extraordinary expenses incurred for the new tower/trailer.

John VA7XB emphasized that more volunteers are needed for SARC events coming up, notably the Fox Hunt, Field Day, Summer Flea Market and maintenance of the new tower/trailer, as it is not fair to ask the same people to do all the work.

SARC Name Badges are now being distributed at a cost of \$10 each. Payment should be made to Scott VE7HA. Anyone who still wants a badge but failed to order it, can get theirs by contacting Lo-Cost Nametag & Engraving at 17560 60th Avenue phone 604-574-0006.: (604) 574-0006

SARC's RDF Fox Hunt will take place on Saturday, May 1st at Crescent Park in South Surrey. A barbeque is planned after the Foxhunt. SARC's event organizer, Anton VE7SSD, is away till end of March so detailed planning will take place on Anton's return. Expert organizational help is being provided by Amel VA7KBA. Anyone who needs assistance with constructing antennas etc. should get in touch with John VA7XB. Other clubs are being invited to participate and keen competition is expected.

A summer Swap Meet is planned in cooperation with Langley ARA for Sunday, August 22nd at the Old Orchard picnic site in Campbell Valley Park. This will be SARC's main fund-raising event of the year, and proceeds will be shared with LARA. Tents will be set up for vendors, commercial sales and other exhibitors and "tailgaters" will also be able to drive their cars and trucks onto the field to sell directly from their vehicles. A legal raffle is planned, with some substantial prizes. Fred

VE7IO is willing to print tickets, but needs to know our requirements asap. The first planning meeting will be held on Thursday, March 11th attended by John VA7XB, Kelvin VA7KPH and Don VA7GL representing SARC.

Field Day this year is on June 25-27 and will be held at Campbell Valley Park in Langley. By agreement with Langley ARA, in alternate years the joint event will take place at Redwood Park in Surrey. SARC will be teaming up with LARA to support a competitive team with the objective of winning. The FD planning committee (for SARC) is comprised of: Anton VE7SSD, John VA7XB, Al VA7BIT and Jay VE7OFH. Some discussion followed concerning the use of a suitable "neutral" call-sign. Fred VE7IO suggested that it be as short as possible (for repetitive CW sending). The GOTA tent will use LARA's callsign this year, and SARC's callsign next year, consistent with the host club.

There are no new developments concerning the repeater, except to say that the effort to have the antennas relocated higher on the Telus tower has been renewed. We are now awaiting a response from Telus. John VA7XB indicated that a Lottery application will be filed again this year for repeater upgrading including the cost of raising the antennas, and we will have to ensure that we do not fail for reasons associated with our cash position. IRLP and Echolink are getting good use.

In light of other demands on our financial resources, the purchase of a new club antenna analyzer has been deferred. Those members who own an analyzer have offered to make theirs available to other members.

Don VA7GL gave a report on the new tower/trailer donated by Telus. US Towers has offered advice on safety and maintenance, all of which is now embodied in a manual prepared

by Don. The starter battery died and has been replaced, and we have made expenditures on plywood for the strut pads, as well as licensing and insurance. Don advised that prior to Field Day, the following additional items need attention: Guy wires and anchors, propane generator maintenance, grounding requirements, leveling procedures, professional inspection and safety instruction for users.

It was noted that Hiu VE7YXG has been making a number of additions to the website. The domain name is to be changed to ve7sar.org or something similar by direct linking to the existing website URL. Bill VE7XS is working on this. A "Buy and Sell" is also planned for the website.

Future meetings: The scheduled speaker for April on "Getting Started with Moonbounce" is Lionel Edwards VE7BQH – as noted above, the date of the April meeting has not yet been confirmed. In May, Gord VE7FKY will be speaking on D-Star and D-RATS. The June meeting is the AGM and Field Day planning. A separate session (including LARA if possible) is planned mid June for FD coaching including logging and FD exchanges for those who are not familiar with the procedures.

The 50/50 was won by Kelvin VE7KPH, who generously donated proceeds to the Club. The meeting was closed at 2120.



President's Message

PLEASE NOTE:
SARC's April
meeting will take
place on Wednes-

day, April 21st rather than the usual date, at the request of our scheduled speaker, Lionel Edwards VE7BQH of West Vancouver, who will

be making a presentation on Getting Started with Moonbounce. Lionel is one of the pioneers in earth-moon-earth (EME) communication so his talk should be of great interest to those who have already made contacts via OSCAR satellites or the International Space Station, or who simply wish to pursue a new technical challenge. It is a privilege to have Lionel as our speaker and, as a contributor to the EME section in the Space Communications chapter of the ARRL Radio Amateurs' Handbook, he is one of the most knowledgeable experts to be found anywhere.

Coming up soon afterwards is SARC's first annual RDF Foxhunt on May 1st at Crescent Park in South Surrey, organized by Anton VE7SSD and Amel VA7KBA. Other clubs are busy preparing their equipment for this event and working on their RDF skills. If SARC members don't want to be left in the dust, we should be doing the same. Anyone who needs assistance to construct a tape measure beam or other directional antenna should let me know as help is available. There will also likely be a chance for a real-life practice prior to the event – an email will be sent out as soon as a date is fixed.

Detailed planning has commenced for two other big events coming up later this year – Field Day is the last weekend in June and an outdoor flea market is planned for August 22nd. Both will be held at Campbell Valley Regional Park in Langley in cooperation with Langley Amateur Radio Association. Volunteers are needed for all events, so please don't leave it to the same few – volunteer your time, get involved and bring your ideas so that we can make these events successful. More details on all of the above are available in the minutes of the most recent SARC general meeting.



SARC new web-site address

The SARC website can now be found more easily at www.ve7sar.net

Cost for this new URL for two years was generously donated by Bill Gipps VE7XS.

Thanks Bill from all the SARC members.

SURREY AMATEUR RADIO CLUB

Annual RDF Foxhunt

Saturday May 1, 2010 at

Crescent Park, South Surrey

Assembly & Instructions at 0930, Foxhunt commences at 1000

Barbeque (by donation) at 1230

Talk-in 147.360+ (110.9 tone)

All clubs and individuals are welcome, but we ask that you RSVP Anton James VE7SSD jamesadf@shaw.ca if you plan on attending:



Take Crescent Rd. west from King George Highway near Hwy 99, then south on 132nd Street to assembly area

GETTING STARTED WITH MOONBOUNCE (EME)

Hear all about it at Surrey ARC's April 21st, 2010 Meeting

Coffee at 7:00 pm, with meeting commencing at 7:30 pm

Our guest speaker – Lionel Edwards VE7BQH of West Vancouver – is one of the pioneers in earth-moon-earth (EME) communication so his talk should be of great interest to those who have already made contacts via OSCAR satellites or the International Space Station, or who simply wish to pursue a new technical challenge. It is a privilege to have Lionel as our speaker – as a contributor to the EME section in the *ARRL Radio Amateurs' Handbook*, he is one of the most knowledgeable experts to be found anywhere.

All are welcome, but we ask that you RSVP via e-mail if you plan on attending: John VA7XB va7xb@rac.ca

The location of the meeting is:
Training Centre behind No. 9 Firehall
14901 64th Ave., Surrey

To see a map go to
SARC's website www.ve7sar.net
Talk-in 147.360+ (110.9 tone)

WPX contest

The Surrey Amateur Radio Club and The Surrey Emergency Program Amateur Radio have teamed up with the Coquitlam ARC to operate a Multi Multi station for the CQ WW WPX SSB contest on the weekend of March 28th. SARC has loaned the towers, which are on

site, for the event so this promises to be a good SSB contest for us. We have reserved the Olympic call VG7G for the weekend.

This is a 48 hour contest so if you want some time on the air please contact John Brodie, VA7XB or Fred Orsetti, VE7IO, and we will get you on the operating list.

You do not need to be an experienced contestester as there will be lots of help on site.

Icom has once again loaned us the IC 7700 for this contest so here's your chance to operate a state of the art radio.

Some Humour



Gary, VE7AS, has for sale

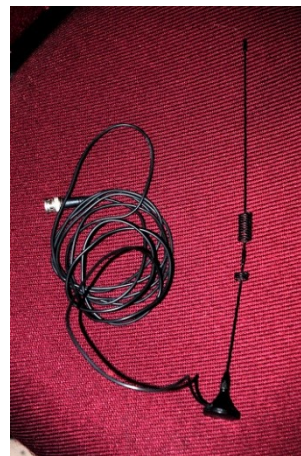
5el 6m Yagi \$50 OBO



BR-200 Antenna Analyser \$300.00



VHF/UHF Gumdrop Mag mount





Aerial Adventures 2010

With Gary Skett, VE7AS

The 6 metre band offers many interesting opportunities to experiment with antennas that produce higher gain, improved directivity and the potential of making DX contacts with relatively low power. At 50MHz. and above, antenna construction becomes simpler and within the realm of the novice builder. So far, the antennas we've built over the last year have given us not much more than 3db to 5db gain, mostly in an Omni-directional pattern. Now it's time to step up our construction level and build our first yagi....well sort of a hybrid between a mono-band yagi and a log-periodic design. This month's project idea comes from Roger Anderson VE7FZX who did a fantastic job making the antenna pieces. I was about to go out and buy the materials, but as luck would have it Roger had the exact project materials for sale, so I ended up buying all of it and finishing the assembly.

The first experiments with this design were documented in the early 1960's by Oliver Swan, a Californian manufacturer of TV antennas. In October 1969 John Meyer N5JM published in QST an article which he called "The Swan Multi-drive 2-Meter Antenna" using the basic Swan Log-Yagi antenna design. It was a 9-element design for the 2 metre band that employed a reflector, 4 driven elements and 4 directors on a 10-foot boom. A stacked 4-bay array of these antennas was recorded to have given the first identifiable echoes from the moon in those early days of VHF radio.

John's first 'Log-Yag' was made from heavy ½" EMT electrical conduit, wooden driven-element supports, a steel 10-foot pole and a whole bunch of steel U-bolts....I don't think Californian Hams have to worry too much about moisture issues.

Thirty-nine years later, we can make a new and improved model using aluminum tubing and 5/8" Plexiglas or another polymer material and stainless steel hardware. Although its cost in 1969 dollars

was about \$4, today's materials will be a bit more, but still about a third the cost of a commercial or store-bought version. If you have some or all of the materials in your metal scrap bins and a box of swap & shop gems you've collected over the last 39 years, then all it will cost is a weekend of time.

Whether you decide to use square or round stock, you'll need an eleven-foot 1¼" OD aluminum pole or thick-walled tubing – tubing will be lighter, but more money for the boom

This should have worked with a 10-foot boom, but the best results were at 10 feet 2 ¼ inches. Thus I recommend starting with an 11 foot cut. However the stock, if purchased new, usually comes in a 12 foot section. Don't cut off the excess until that last measurements are made. I ended up adding an extension to the boom piece.

and some ½" OD aluminum tubing – about 46 feet of it, or four 12-foot lengths of tubing from MetalMart or the Metal Super Market. OR....you can hunt around for bunches of old channel 2 TV yagis and salvage the elements off those...

Changing the diameter of the material will affect the end result. That's where some experimentation comes in. Keep to the dimensions stated herein and you may not need to do much 'playing' to achieve a workable antenna.

A few things we should expect from our Log-Yagi; Gain, at least 9dbd if we can find the magic spacing of the elements, a front-to-back ratio of at least 23db, and side nulls of 25db or better. But that will remain to be seen – or heard, after the antenna is ready for testing. Initially, I'd just like it to resonate between 50 to 52 MHz. [the CW/SSB/DX portion] with a VSWR of less than 1.5:1 and have the input impedance close to 52 ohms....everything else is a bonus.

The basic concept of this brilliant design is to mix the broadband characteristics of a log-periodic antenna with the high gain of a Yagi-Uda. Those interested can study up on the theory of such antenna designs in any ARRL handbook and their antenna handbooks and anthologies from 1969 to present year. William Orr W6SAI, was an American RF engineer and author of an excellent series of

Oh, when going shopping, don't be surprised if no one uses metric units...the Trades here in Canada still use the good old imperial scale for most things...although some are changing. Any store that has ties to or does business with the USA will still deal in imperial measurements.

antenna books spanning a couple of decades from the late 70's, and of course the Radio Society of Great Britain has numerous texts on the subject as well.

Another reason for the design and feeding the two driven elements 180° out of phase is to get the input impedance closer to 52 ohms. Swan's original design [for TV] was shooting for 110 ohms, according to his notes.

So, we have a design that is relatively broadband by feeding two different pairs of driven elements, and two parasitic directors to sharpen the beam pattern and increase front-to-back ratio. Element spacing tends to be closer than a straight Yagi, and the element lengths are also slightly longer because of that. If you wanted, you could add one or two more 104" directors to sharpen the beam width and provide more gain, if it's needed. Extra boom length would also be needed, at 50" per director added thereafter.

As well as the tubing, we'll need to make two insulated element-to-boom brackets [thus the plastic or Plexiglas] and three aluminum plate element-to-boom brackets for the reflector and two directors. The diagram [Figure 13] at the end of this article gives you the required dimensions. Please note the hand drawing is *not to scale*.

You can attach those elements to the plate with SS U-bolts of appropriate dimensions, and the plate to the boom with one or two stainless steel or galvanized U-bolts. For this antenna, Richard was lucky enough to find three of these cast aluminum element-to-boom brackets [salvaged from a commercial grade yagi most likely]. Using these brackets will limit you to the material dimensions needed to fit inside these brackets, those of you making their own will have some flexibility in the material OD.

Once you have the aluminum stock in hand, cut the elements to the following lengths in inches: [the younglings can convert to metric if needed...] Use a pipe cutter or band saw to make clean, straight cuts and dress [smooth] the ends.



Figure 1 - Commercial grade cast aluminum element-to-boom brackets make for a professional looking antenna project. Wish I could find more!

Reflector: One piece of 116"

Driver #1 (rear): Two pieces of 54" each for a total of 111" tip-to-tip with a 3" center space as per the diagram.

One other place I need to mention is ABC Traders in Richmond, on the NE corner of No. 3 Road and Bridgeport. Wear something you don't mind getting dirty, as this fascinating [but dirty] place deals in salvaged aluminum, brass, copper, steel and other metals from the aircraft industry, other manufactures and fabrication shops around town. Check out their web site at www.abc-traders.com.

This is a great place to go and buy metal bits by the pound to make brackets, antennas, or anything that your creative mind can conceive. Metal bits of all shapes, sizes, dimensions and prices... a great place to stock up on whatever you need to build just about anything you can! Bring gloves and cash...

Driver #2 (front): Two pieces of 53" each for a total of 109" tip-to-tip with a 3" center space as per the diagram.

Director #1: One piece of 107" **Director #2:** One piece of 104" and any directors thereafter.

You'll also need some aluminum wire or strapping to feed the drivers as illustrated. They cross in the middle, and must be insulated so as not to touch each other at the crossing point.

Those of you using old stock saved from previous projects and broken antennas, will have to clean the stock before final assembly. Steel wool or soft brass brushes work well on most tarnished stock. Aluminum Navel Jelly works for highly oxidized stock. Also, see if you can go through the end-cut boxes at the two metal stores I mentioned earlier to get flat material to make the 3 parasitic element-to-boom brackets. They sell left-over's by the pound and the prices can be good. Also ask where their end-cut racks are too, as there may be lots of sheet stock to choose from.

For the element brackets, I suggest 3 pieces 2" wide by 6" long out of 3/16" or 1/4" stock. Two SS U-bolts to hold the elements

to each plate and two larger U-bolts to attach the plate to the boom. These element brackets are not insulated. You could also drill and tap the plate and then use SS machine screws to attach the element to the plate. Make sure everything is centred as you obviously don't have the adjustments U-bolts afford you, but it cuts down on weight and expense.

For the two driven elements, they need to be insulated from the boom and each half of the dipole. Go to Industrial Plastics [in Langley] or Plastic Works [in Surrey] and go through their end cut shelves, see if you can get something strong and thick, 1/2" to 5/8" in Nylon®, Teflon®, Plexiglas® or whatever they have....something hard [not too flexible] with good UV qualities would be a bonus. Lexan® doesn't cut or carve nicely, so stay away from that material. If you don't have a table saw at home, get them to cut you two pieces 2 1/2" by 12". Just make sure it doesn't have a curved surface and the piece is 'square' as you'll need to do some router or milling work and drill holes into it to finish the brackets and it helps if their cut is precise.



Figure 3 - Completed Plexiglas Driven Element Support

and a router to carve the two top 'slots' to help hold the two sections of the driven elements 3" apart, straight and level. The 4 holes you see are for the U-bolts to hold the bracket to the boom and the holes through the element slots and tubing are to secure everything. Richard's milling machine did a better job, but the dado blade and router bit did a decent job, perhaps not as neat. ☺

This is what the end result should look like. Richard used a milling machine or at least a milling cutting bit for these brackets. I made another similar pair using a dado blade set to make the groove on the bottom [centre] to help keep the elements at 90° to the boom



Figure 2 - Insulating brackets with hardware installed.

This took me the better part of one afternoon to make the two new brackets...An hour or two to tool up, make jigs, tape, and layout, then cut and carve the two pieces, and 3 hours to sit back [with an appropriate beverage] and admire my work... and then an hour to clean up the shop. ☺

A note on working with plastics...Cover the material in masking tape to make it easy to lay out the places to cut and drill and to lessen the scratches on the surfaces. Be patient, use new or recently sharpened bits and blades. Use drill bits that have been made for or modified to drill into plastic without grabbing or chipping – they are available where you buy your material. Start drilling 2 to 3 sizes smaller, then work up to the hole size you need for an easy fit with the U-bolts. This ensures a smooth ‘round’ hole with no chipped edges. Be patient, speed here usually ends in the piece being discarded and/or personal injury. Wear eye protection and secure your stock properly.

Cut or carve out very small layers of material each pass. All these grooves you see in my photo took multiple passes, because if you try and remove too much material at one pass, it may shatter! The speed at which you make a pass is critical too. I’d suggest making some trial cuts in a spare piece before you do the brackets. A milling machine would be the best for this, or a CNC machine...even a milling bit in a drill press with an appropriate jig or XY adjustable vice works if you’re short of the appropriate power tools. A router table would have been easier than using my router free-hand [with a guide]. Just be extremely careful when using your power tools with plastics. And with aluminum stock too, especially if you are using saw blades in your table saw, radial arm , or mitre saw to cut sheet material and tubing – *use the correct blades for the material !*

Oh, one more piece is required...some sort of bracket to hold the finished antenna to the mast! You



Figure 4 - Design 1 Homebrew Boom to Mast Bracket.

could simply drill two holes for another U-bolt somewhere in the middle of the boom...or better yet where it balances – less torque stress on the U-bolt. Or you can make something more structurally sound.

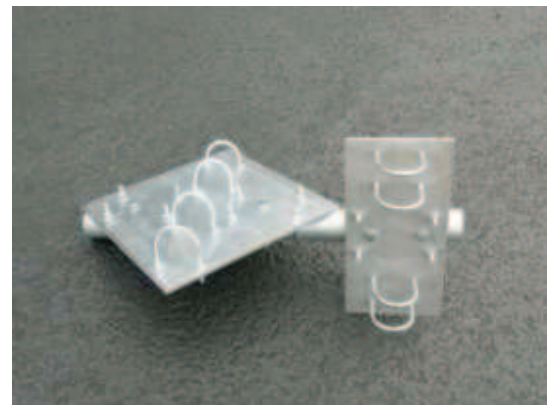


Figure 5 - Alternate designs for a Boom-to-Mast bracket.

Once you have completed all the fabrication, the next step is the assembly. Keep in mind this antenna is over 10 feet long and just over 9 ½ feet wide at the reflector, so an appropriate place to assemble it is required.



Figure 7 - Fabrication complete, ready to assemble.



Figure 6 - Parts ready for assembly



Figure 8 - Initial Assembly Complete and out of the workshop.

It's raining now, so that's the end of day one working outside. Assembly done, I had a heck of a time



Figure 10 - Feed System. Heat Shrink used to ensure no contact as the strips cross. The coax will be connected at the bottom of the picture, or the front-most driven element.

getting the antenna outside the garage and I had to take the antenna up and over the roof to get it into the back yard....Oops! It was wider than I anticipated....☺ Time for a hot toddy, clean up the workshop and bring the car inside until the next project.



Figure 9 - Sitting on Director #2 after its trip up and over my roof to the back yard. Note the spacing of the elements.



Figure 11 - Aluminum flat stock was used to feed the two driven elements 180 degrees out of phase. Heat Shrink was used to ensure isolation between the two strips, should they touch.

We should expect a gain of at least 9dbd – that's a gain of 8 times over a dipole – $2 \times 2 \times 2$ or 3db x 3db x 3db. So if you had 25 watts out of our transceiver, and assuming we used our magic “no-loss” coax we would expect an effective radiated power of 200 watts.

Front-to-back and side rejection should be in the order of -23db to -25db [or better] – that's an attenuation of signals off the side and back of at least 200 times or better.

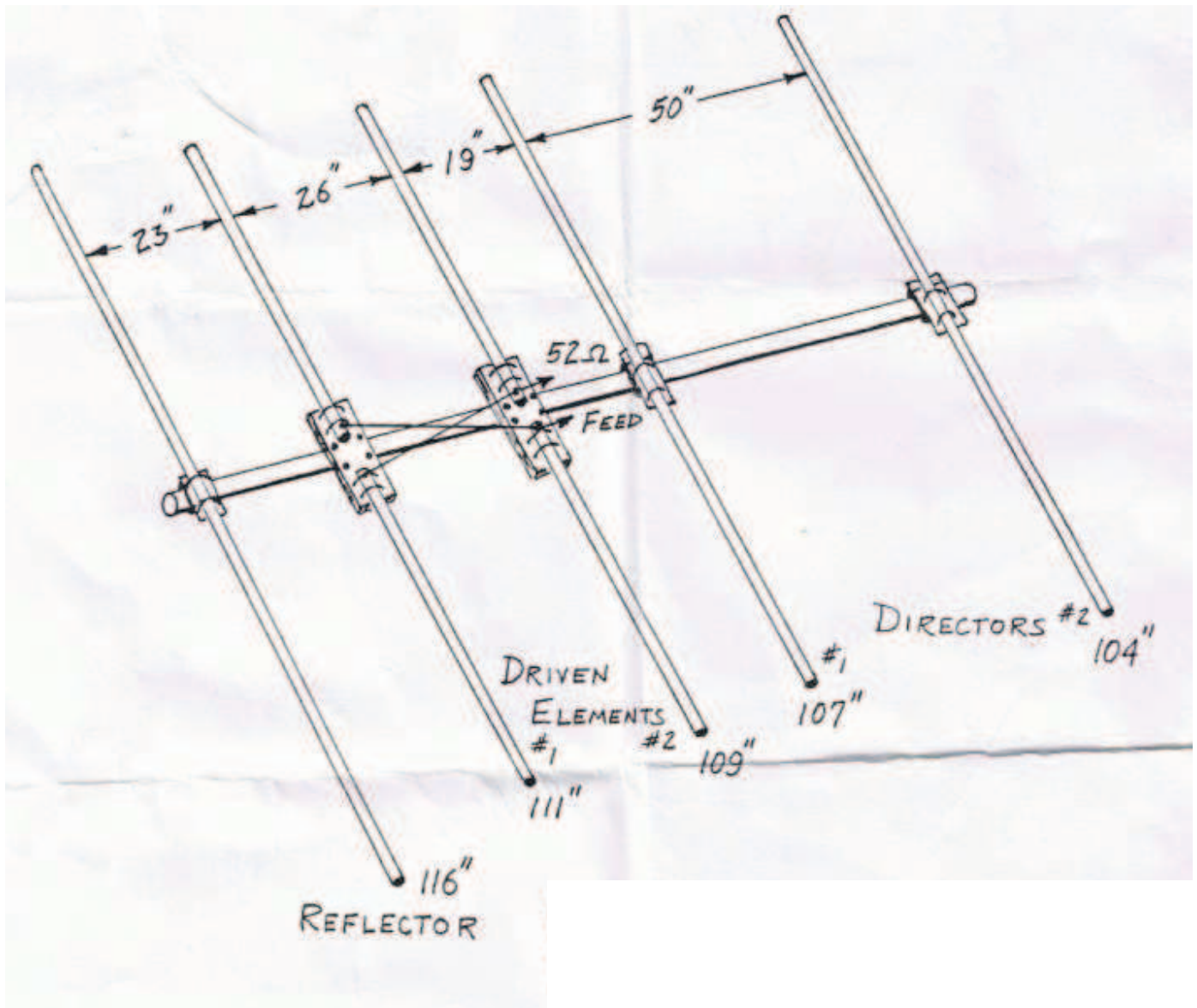


Figure 13 - This is John Meyer's original hand drawing of his 6 metre Log-Yagi.



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Figure 12 - Recommended Shops for Project Materials.

Time to set up the yagi for testing and adjustments. You can do it two ways, either place the reflector on some dry wood about a foot off the ground and point the yagi straight up and prop it up with something non-metallic and dry, or mount the yagi on a pole and get it off the ground as high as practical – or at least 2 to 3 metres [$1/4\lambda$ to $1/2\lambda$ is best] off the ground in the horizontal plane – away from structures if possible.

Instead of making a 1:1 balun, Richard provided an old commercial balun which I attached to the front driven element with two 3" pieces of #10 solid copper. Please note that it appears the balun must be hanging free from the antenna and not attached or taped to the boom by any means, as this changes the VSWR somewhat for the worse. This may be especially noticeable if you make your balun out of

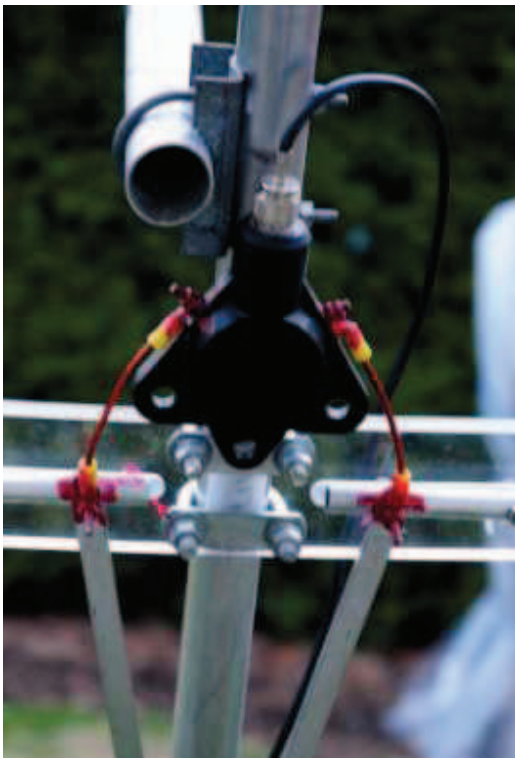


Figure 14 - 1:1 balun suspended above the boom, in front of the front-most driven element. Contact points painted with red liquid neoprene to make them more visible in the photo and provide minimal protection until they are all weather-sealed.

coax and hang it from the feed point less than a few inches down the mast support. I suspect that this would degrade or alter the radiation pattern too. One way to find out is wave your hand around the balun while looking at your antenna analyser or computer screen, and take note of the changes. A properly placed balun will not “swing” the readings radically.

I have a standard 20' length of LMR240 I use for my initial measurements, which I attached to the balun after installation. Step away from the antenna to make your initial readings with your antenna analyser.

The Log-yagi resonated at two frequencies! [Referring to Figure 15] --

50.416 Mhz. and 52.072 MHz. Something I wasn't expecting, but it's a good start...

Input impedance at [and around] resonance was 48.9 to 52.6

Ohms – also good. Overall Z was between 33.72 to 72.63 Ohms – very workable with a 50 ohm coax feed. VSWR was an amazing 1.12:1 at 52.072MHz. And 1.2:1 at 50.416MHz. *Is that great or what?!*

Swinging the [frequency] dial above and below the resonant point, I get a 2:1 bandwidth from 50 to 52.300 MHz. [A 2.3Mhz. bandwidth] and a 1.5:1 bandwidth from 50.416 to 52.072MHz. [A 1.656 MHz. bandwidth].

This is.... OK. The original notes stated that it would be 'flat' across the lower 2 MHz. It isn't, as we can see on the screen print below. There is a very small portion above the 2:1 SWR point between the two resonant points that may reduce the output power of your solid state transceiver.

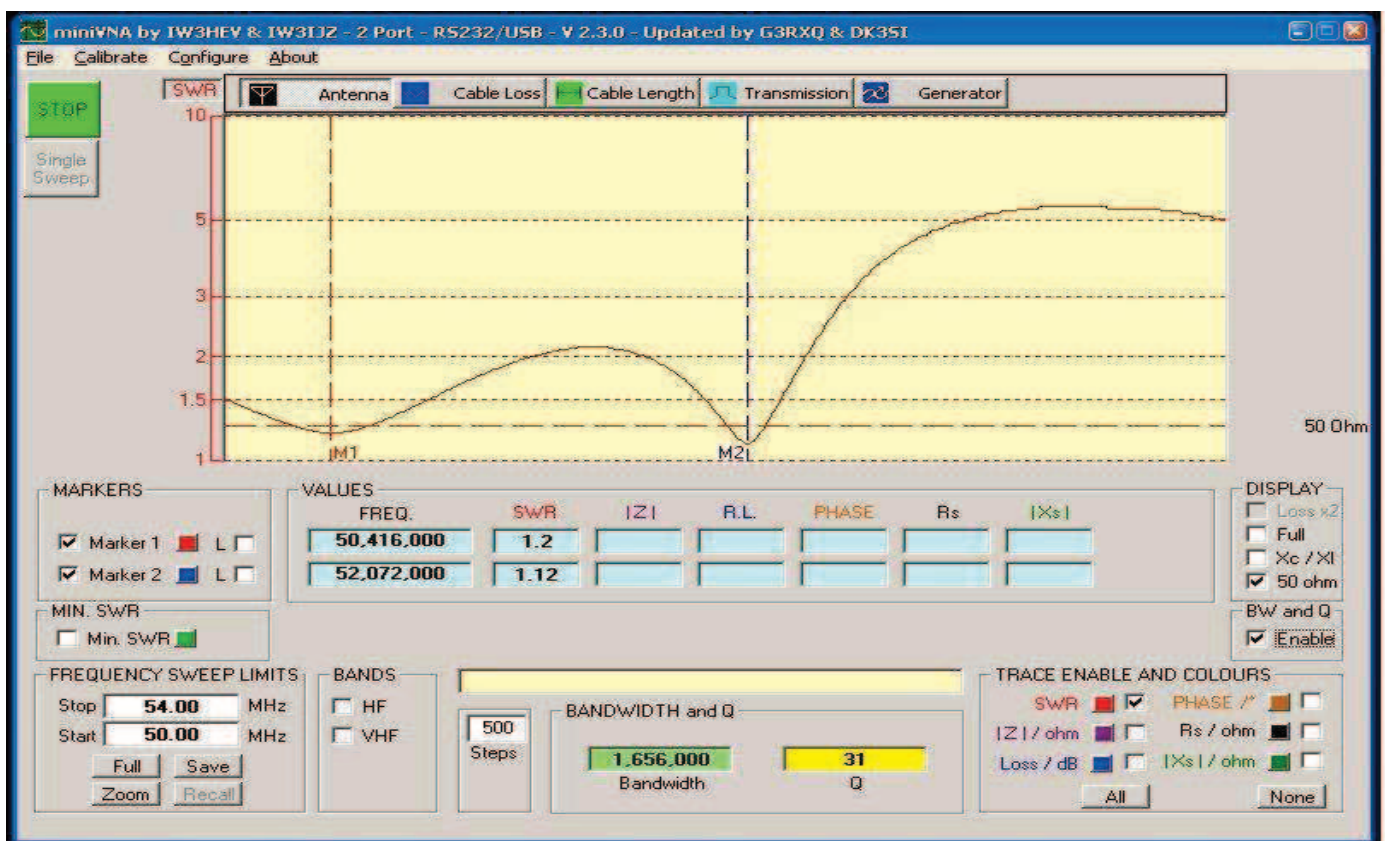


Figure 15 - Initial VNA Readings

But a quick push of the 'tune' button on your rig and it's no longer an issue. But I should try and smooth it out at the antenna end.

Now that I think of it, why shouldn't I get two resonant points? After all, the two driven elements were cut for 51 and 52 MHz. Maybe that anomaly between the two dips would smoothen out when I start to play with spacing?

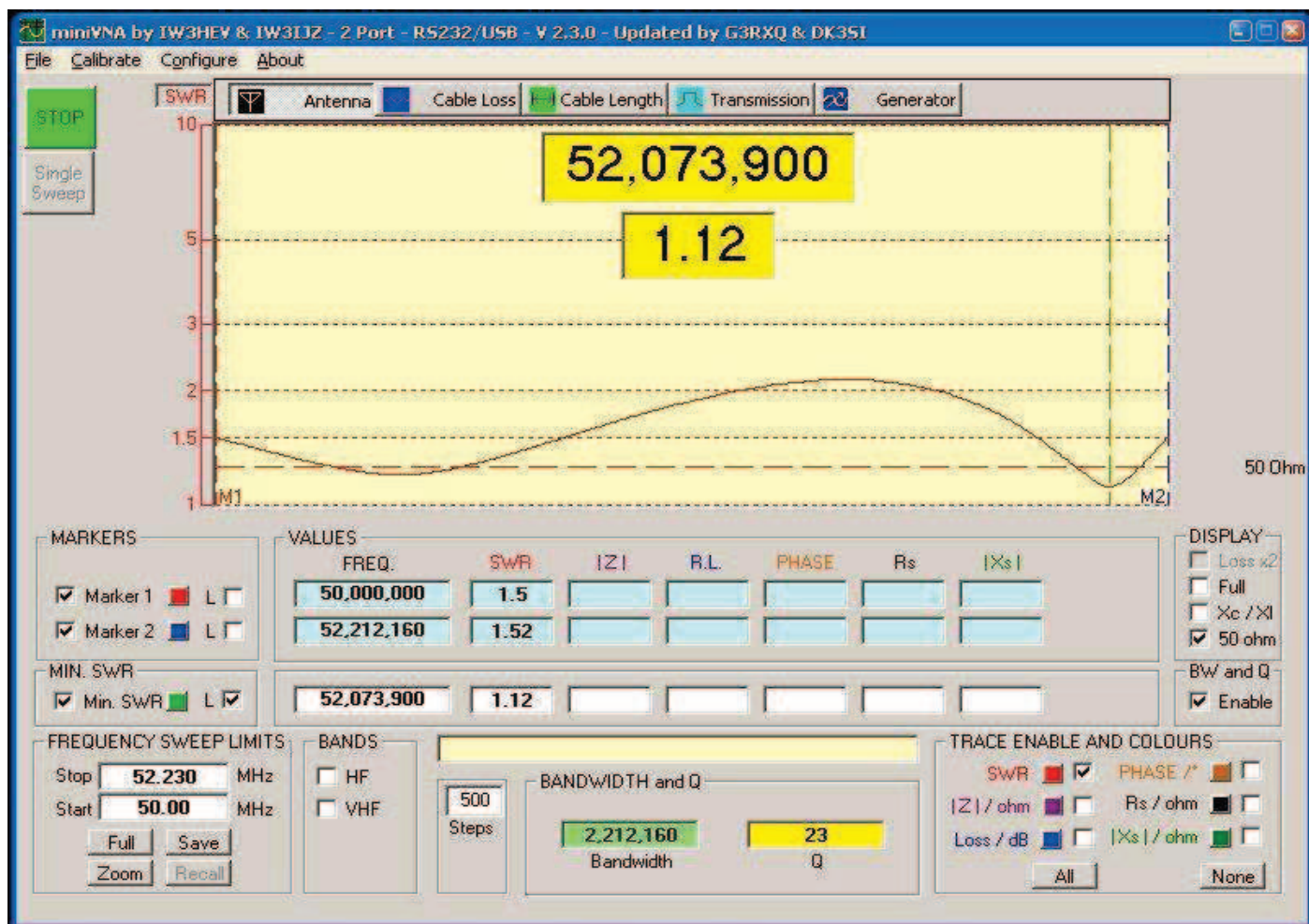


Figure 16 - The 1.5:1 Bandwidth Screen Print

If we look closer at Figure 16, we can see the 1.5:1 bandwidth is from 50 to 52.212160 MHz. A bandwidth of 2.212160 MHz. Not bad at all actually. Minimum SWR is 1.12:1 at f_r of 52.0739 MHz. The Yagi would be quite usable for the lower 2 MHz. of the 6 metre band as it sits right now....but what would be the fun in that?! Have to 'play' with spacing and see if the design can be 'tuned.'

The position of the commercial 1:1 balun appeared to be in a good spot, and waving my hand around it and the nearest driven element didn't affect the SWR much at all – so it stays where it is.

Moving the first director about the boom and/or changing its length did affect both the SWR and impedance – albeit ever so slightly. Should you wish to vary these values, this would be a good place to start. To a lesser extent, the reflector also controls these values.

After hours of playing with all the elements, I simply could not find any spacing that was totally optimal. I could play with element lengths next...but....do I really need to? As I've mentioned before, that's what the 'tune' button on your transceiver is for...

To summarize, I am sure that changing the material, the dimensions of the material and maybe the use of a commercial balun, made some differences. There will always be some differences between the original author's results and what you get. It's inevitable that what you build, the way you do things, with materials you chose, and all the other variables, your antenna will need "fine tuning." In this case there was enough changed to alter the "flat across the band" claim...but then again there weren't terrific MiniVNA devices or even something like my BR-200 analyser to measure antenna characteristics in real time back in the 1960's....Yeah, that's it! His test gear was too primitive...can't be the construction? ☺

I have some time before it goes up in the air...I think this may be a work in progress...and I'll let you know how it goes.... I will play with element lengths, coax lengths next and see if I can improve on it. Stay 'tuned' for further results....I'd be very interested in someone else's results, so please let me know...ve7as@rac.ca

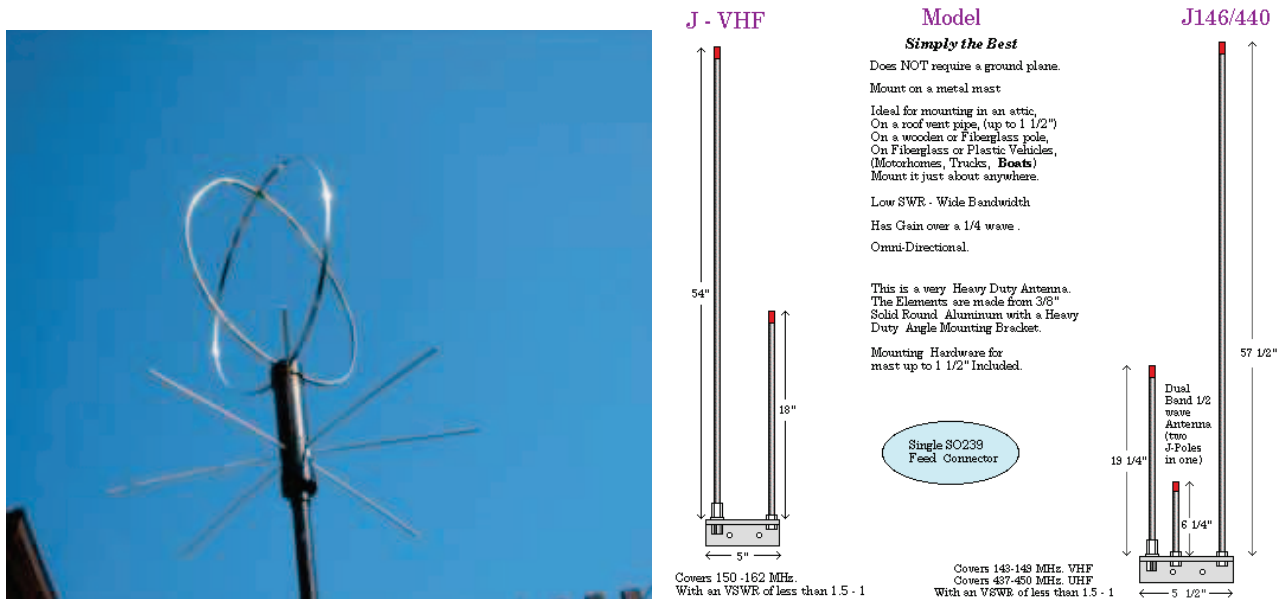


Figure 1717 - Next month we build a VHF & UHF "Eggbeater" for Satellite work and maybe a dual band "J "

CAMPBELL VALLEY REGIONAL PARK, LANGLEY, BC

SUNDAY AUGUST 22, 2010

10 AM -2 PM (8 AM SETUP FOR VENDORS)

OPEN AIR AMATEUR RADIO FLEA MARKET

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Stan Brown VE7YSB

Phone: 604-534-8256 or

604-574-5060

e-mail: sabcostan@shaw.ca

This is an open-air flea market with circus-style tents for under cover table sales plus outside area for direct-from-vehicle sales, all in a park setting.

Buying and selling of used and new amateur radio items and electronics, with commercial exhibits, RAC table, and QSL bureau. Door prizes and raffle prizes total value \$1000. Food and refreshments available.

Prepayment will ensure your table/tailgate reservation. \$20 for table under circus-style tent (includes vendor's admission); \$15 for tailgate vendors (bring your own table & chairs if desired); \$5 admission for buyers.

To get to Campbell Valley Regional Park...

Proceed south on 200th Street, then east on 8th Ave. to south park entrance and watch for signs to parking area.

For travelers from the US... from Hwy 99 (Peace Arch Border crossing) or 176th Street (Pacific Border crossing), take 8th Avenue exit and continue east as described above.

